REMARKS

In response to the Office Action of January 23, 2009, enclosed is a Replacement Abstract on a single sheet of paper in compliance with M.P.E.P. §608.01(b).

With regard to section headings, Applicants have reviewed the guidelines for such headings and the headings currently in the application and believe they are adequate. Thus no amendments have been proposed.

Claims 10 and 12, as well as claim 11, have been amended to avoid the noted objections to the claims. Claim 10 depends from claim 5, which refers to the "spacer" as also serving as a sealant, so the language "also serving as the sealant" has been deleted from the claim for being redundant. Similarly, claims 11 and 12 depend from claim 6, which also refers to the spacer as serving as a sealant, so the same language has been deleted from these claims for the same reason.

Applicants' invention as set forth in claim 1, relates to a thermoplastic resin composition comprising:

a thermoplastic resin (A) having a moisture vapor permeability of 1.0×10^{-13} $cm^3 \cdot cm/ (cm^2 \cdot sec \cdot Pa)$ or lower;

at least one kind of unvulcanized rubber (B) selected from the group consisting of a halogenated isoolefin/para-alkylstyrene copolymer and an ethylene propylene rubber; and

a moisture absorbent (C), wherein:

the weight ratio of the thermoplastic resin (A) to the unvulcanized rubber (B) is 85/15 to 15/85; and

the content of the moisture absorbent (C) is 10 to 70 parts by weight to 100 parts by weight of the total of the thermoplastic resin (A) and the unvulcanized rubber (B).

The composition is suitable for use in a spacer between two glass plates in an insulating glass unit.

In the Office Action, the Examiner rejected claims 1-6, 8 and 10-11 under 35 U.S.C. §102(b) for being anticipated by U.S. Patent No. 6,491,992 to Koizumi et al., hereafter Koizumi. Koizumi as noted in the Information Disclosure Statement filed January 25, 2006, is one of the referenced patent documents, i.e., Patent Document 4, cited and discussed as prior art in the present specification in paragraphs [0005 and 0009]. It belongs to the assignee, so the Applicants are familiar with the teachings of this reference.

In paragraph [0009], it is noted that "meanwhile, simplification of the production process and improvement of the productivity can be achieved to some extent by using the thermoplastic elastomer composition described in Patent Document 4, i.e.,[Koizumi]. However, since the composition is dynamically cross-linked, partial cross-linking of the composition takes place in the insulating glass production process, particularly in a molten state upon application of the composition to a glass plate, which may lead to increase of the viscosity and reduction of the production efficiency." As noted in column 9, lines 30-40 of Koizumi, this cross-linking is done "in advance" with a vulcanizing agent so that the rubber can be cross-linked or vulcanized while the thermoplastic resin and rubber are kneaded together to form the composition.

From Comparative Examples 3 and 4 in the present application (pages 54-55 and Table 2 on page 58), it was discovered that a sealing material comprising a

thermoplastic resin (A), an unvulcanized rubber (B), and a moisture absorbent (C) similar to the present invention at the same ratios as that of the present invention, to which a vulcanizing agent was added to have the whole subjected to dynamic vulcanization is inferior in retention stability as well as moldability.

Koizumi may disclose an unvulcanized rubber as a starting material, (column 9, line 26), but the rubber in the thermoplastic resin composition is vulcanized as it is being prepared (column 9, lines 36-40). In contrast, Applicants specifically claim an "unvulcanized rubber" in the composition, which is not a part of Koizumi's thermoplastic resin composition.

Accordingly, it is submitted that neither claim 1 nor claims 2-6, 8 and 10-11 dependent therefrom are anticipated by Koizumi. Its withdrawal as a ground of rejection of the claims under §102(b) is therefore requested.

An object of the present invention is to provide a composition that is excellent in heat resistance, has low heat shrinkage, is excellent in moisture vapor transmission, and is capable of improving the productivity of an insulating glass unit. Also, an insulating glass unit using the above composition that can be easily produced, has high productivity, and is excellent in heat resistance, moldability, and dew point performance.

As described in paragraph [0012 - page 7] of the specification, the inventors found that the use of the above-described composition containing the unvulcanized rubber can suppress a change in viscosity of the composition and improve the productivity of insulating glass units.

More specifically, starting from paragraph [0037 - page 19), of the specification and as set forth in claim 1, the unvulcanized rubber (B) to be used is at least one kind of

unvulcanized rubber selected from the group consisting of a halogenated isoolefin/para-alkylstyrene copolymer and an ethylene propylene rubber. When this unvulcanized rubber is used, in the production of an insulating glass unit, retention stability at the time of melting and heating for applying the composition of the present invention to a glass plate is particularly excellent, and no increase in viscosity of the composition occurs, so the productivity of insulating glass units can be improved. The use of a halogenated isoolefin/para-alkylstyrene copolymer or an ethylene propylene rubber for the unvulcanized rubber provides extremely excellent heat resistance. Thus, inclusion of the unvulcanized rubber (B) particularly imparts to the composition excellent retention stability at the time of melting and heating and suppresses increase in viscosity and is capable of providing a thermoplastic resin composition excellent in productivity for insulating glass units.

In addition, as set forth in paragraph [0043 - page 22] and in claim 1, the compounding weight ratio of the thermoplastic resin (A) to the unvulcanized rubber (B), i.e., resin (A)/rubber (B) is 85/15 to 15/85. When the weight ratio falls within the above range, the hardness of the composition is in a suitable range and production failure due to collapse of the composition during the production of an insulating glass unit can be suppressed (the insulating glass unit is excellent in workability). In addition, the insulating glass unit is also excellent in dew point performance in the accelerated aging test described in JIS R3209-1998, especially in classes II and III. Accordingly, by having the weight ratio of the thermoplastic resin (A) and the unvulcanized rubber (B) within the above range, the present invention can obtain a composition having a preferable hardness, capable of suppressing product failure due to deformation of the

composition during production of insulating glass units, and having excellent dew point performance.

The effects of the present invention are evidenced by the Examples . Each insulating glass unit in Examples 1 to 10 using the thermoplastic resin composition of the present invention exhibits low heat shrinkage, excellent moldability and dew point performance, and improvement in productivity.

On the other hand, an insulating glass unit made from a thermoplastic resin composition containing no unvulcanized rubber (Comparative Example 1) did not exhibit a satisfactory dew point performance and was inferior in moldability.

An insulating glass unit made from a thermoplastic resin composition containing a thermoplastic resin and unvulcanized rubber at a weight ratio departing from the range specified by the present invention (Comparative Example 2) was inferior in dew point performance (Classes II and III) as well as in moldability.

In addition, and as discussed above, an insulating glass unit made from the thermoplastic resin composition in which a vulcanized rubber was dispersed, i.e., Koizumi, (Comparative Examples 3 and 4) was poor in retention stability and moldability.

Finally, an insulating glass unit made from a thermoplastic resin composition containing butyl rubber as an unvulcanized rubber (Comparative Examples 5 to 8) showed insufficient heat resistance.

Accordingly, the claims should not be considered to be obvious over Koizumi either, particularly in view of the results of Comparative Examples 3 and 4.

Regarding claims 7, 9 and 12 relating to a secondary seal or sealant, Bower may include two seals between two plates of glass, but it does not teach what is missing in Koizumi, namely, the use of an unvulcanized rubber in the thermoplastic resin composition of the spacer, also serving as a sealant, between the plates of glass. Since these claims depend directly or indirectly from claim 1, it is submitted they are patentable over the cited combination of references for the same reasons set forth above regarding claim 1.

It is believed claims 1-12 are in condition for allowance.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Attachments: **Replacement Abstract**
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